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Supplementary Material for

Title: The *E. coli* pET expression system revisited – mechanistic correlation between glucose and lactose uptake

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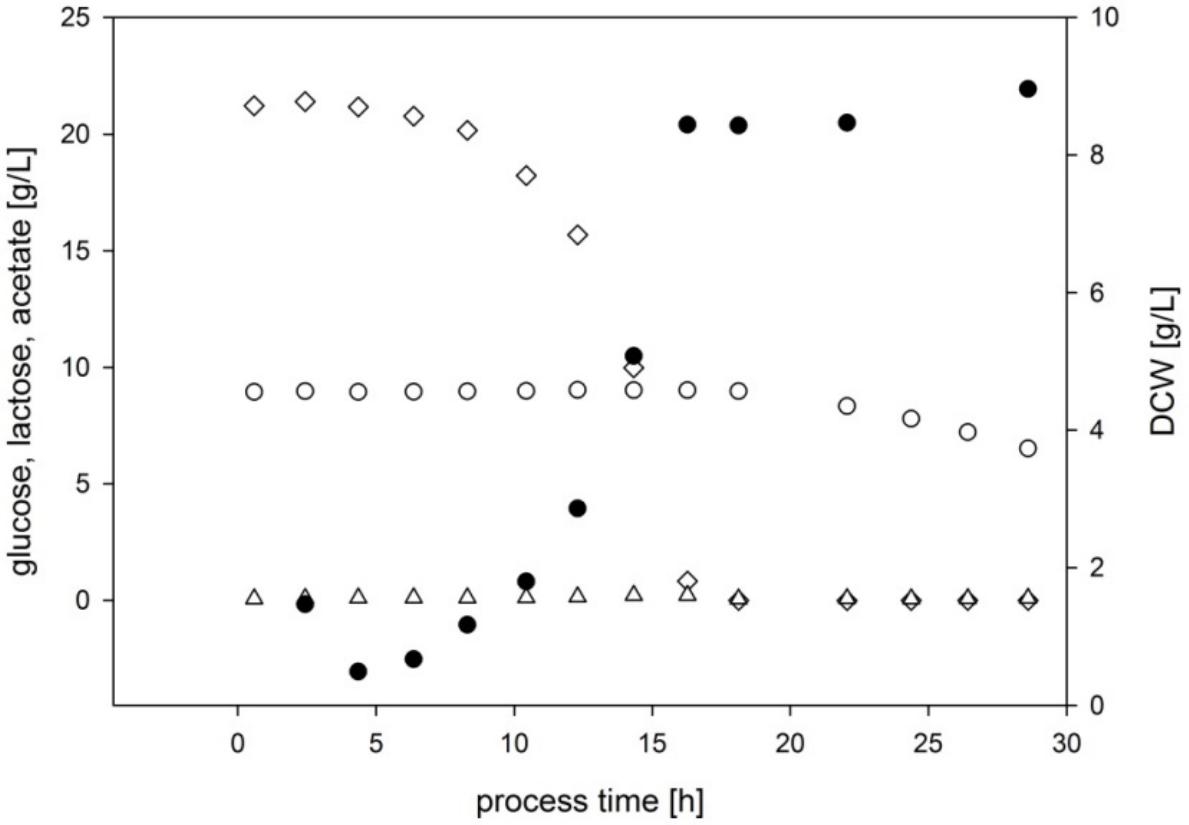
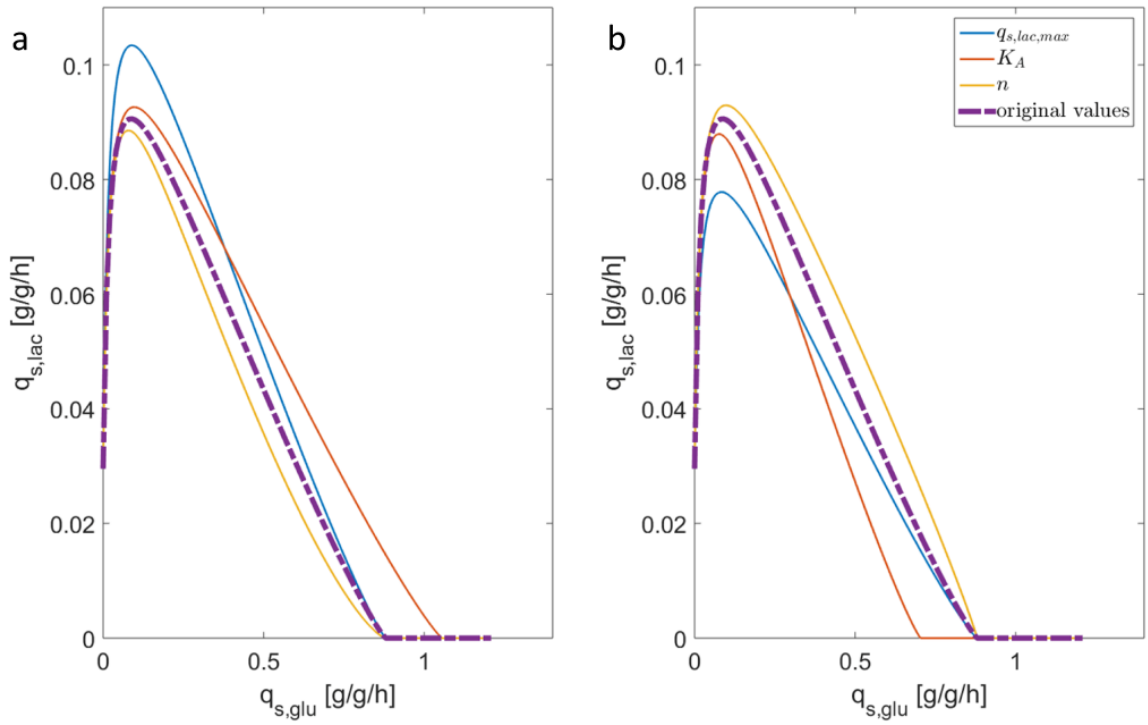
Supplementary Table S1 Overview of cultivations conducted in this study to evaluate $q_{s,lac}$ at a certain $q_{s,glu}$ and to investigate impact on product formation

Cultivation	**Inducer**	**Induction conditions**	**$q_{s,glu}$ [g/g/h]**	**Goal**
$B_{lac}1$	lactose	glucose and lactose in excess	$q_{s,max}$	Evaluate $q_{s,lac}$
$B_{lac}2$	lactose	no glucose, lactose in excess	0	Evaluate $q_{s,lac}$
$FB_{IPTG}1$ - 3	IPTG	0.5 mM IPTG, constant $q_{s,glu}$	0.14-0.45	Impact on q_p
$FB_{lac}1$-3	lactose	lactose in excess, glucose via pulse or feeding	0.05-0.88	Impact on q_p, evaluate $q_{s,lac}$,



Supplementary Fig. S1 Batch cultivation in the presence of both glucose and lactose in excess. Carbon catabolite repression is nicely shown. Black dots, DCW; empty diamonds, glucose; empty circles, lactose; empty triangles, acetate



Supplementary Fig. S2 Local sensitivity analysis of the model parameters $q_{s,lac,max}$, K_A and n. The model parameters are (A) decreased or (B) increased by 20% in comparison to the values of the optimal fit